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Your attention is invited

**NEWS
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PROCEEDINGS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS**



DIVISION ACTIVITIES

SANITARY ENGINEERING DIVISION

Proceedings of the American Society of Civil Engineers

NEWS

March, 1961

NATIONAL CONFERENCE ON WATER POLLUTION

The First National Conference on Water Pollution was held in Washington, D.C. on December 12-14, 1960. Almost 1100 persons participated in the meetings despite one of the worst snowstorms in recent history.

After a plenary session on the first day, work of the Conference got underway in four panels.

The four Panels with their chairman were:

- Panel I - "Water Pollution and Our Changing Times," Thomas A. McCann, Mayor of Fort Worth, Texas.
- Panel II - "Meeting the Growing Competition for Water," E. A. Ackerman, Executive Officer, Carnegie Institution of Washington.
- Panel III - "Keeping Water Clean," Dr. Abel Wolman, Professor of Sanitary Engineering, the Johns Hopkins University.
- Panel IV - "Research and Training," Dr. Gordon M. Fair, Professor of Sanitary Engineering, Harvard University.

These four panels prepared recommendations based on discussions of the groups and reported back to the full Conference in its final sessions. The recommendations, modified by floor discussion, are reproduced below, and will form the basis for the final report.

A Summary Report of the Conference will be available by the time this Newsletter is published. Copies may be obtained from Frank A. Butrico, Executive Secretary, National Conference on Water Pollution, Public Health Service, Washington 25, D. C.

Recommendations of the Conference

1. That the conference express its conviction that the goal of pollution abatement is to protect and enhance the capacity of the water resource to serve the widest possible range of human needs, and that this goal can be approached only by accepting the positive policy of keeping waters as clean as

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possible, as opposed to the negative policy of attempting to use the full capacity of water for waste assimilation.

2. The adoption of a national credo, to be given as wide and consistent publicity as is feasible. The content of the credo would be:

(a) Users of water do not have an inherent right to pollute; (b) users of public waters have a responsibility for returning them as nearly clean as is technically possible; and (c) prevention is just as important as control of pollution.

3. There is need for a more systematic approach to the evaluation of the water pollution problems, to include health, esthetic, and market values. A framework for analysis must be developed which will provide a relatively precise understanding of benefit-cost and which will form the basis for the design of public policies and programs for effective water quality management.

4. Planning for the comprehensive development of each major basin or water resource area should be established as a fixed national policy. By comprehensive development we mean the application of integrated multiple-purpose design, planning and management which include the joint consideration of ground and surface waters, systematic conservation by water users, and the treatment and management of waters having sub-standard quality. Consideration of every appropriate technique would be a routine part of planning for such development.

Such planning, insofar as feasible, should include consideration of all important industrial plant sites. An early and important objective should be a systematic program of flow regulation. State initiative toward comprehensive planning should be encouraged, and participation by all major interests should be encouraged. The objective should be one of eventually producing maximum total benefits from all economic and social uses.

5. Provision should be made, legally and financially, for the identification and acquisition at an early date of reservoir sites needed in the execution of comprehensive plans. The mounting population, the spread of settlement, and general intensification of valley land use otherwise may make many good sites totally unavailable or prohibitively costly.

6. The value of soil conservation, sediment control, and salinity control as pollution abatement measures should be recognized through planning and budget in our National, State, and local resource development programs. They should be considered as tools to be applied in water development and management. Pollution abatement is a problem with roots in rural land use and agronomy, as well as in urban congestion and industrial growth.

7. That public policy formally recognize the recreation value of our water resources as a full partner with domestic, industrial, and agricultural values in water quality management policies and programs.

8. Administration of water pollution control programs on state and interstate streams should continue to be the responsibility of the State agencies which therefore must be supported by adequate budgets and staffed by competent directors, engineers, scientists and related professional personnel. It is essential that State legislatures appraise more realistically their opportunities and responsibilities in carrying out the principle herein stated and are urged to take appropriate action where necessary.

9. The administrative level of the Water Supply and Water Pollution Control activities in the Public Health Service and in the States should be commensurate with the importance of this problem.

10. That state statutes and organizational structures for water pollution control should be reviewed and strengthened or revised where necessary. The following revisions were proposed in the suggested 1950 State Water Pollution Control Act as a guide for State legislation in this field. The proposals were:

- a. Vest comprehensive authority in the State water pollution control agency, which would be given independent status in its organizational placement in State government;
- b. Insure construction of municipal treatment facilities ordered by the State agency by authorizing courts to direct all necessary steps, including bond issues, tax levies, and revenue charges if required;
- c. Authorize the establishment of sanitary districts to deal with local pollution control problems beyond municipal limits.

Panel III did not arrive at an agreement on these proposals.

11. The Federal Government has clear responsibilities in its working relationship with State and local governments with respect to: research, leadership in personnel training, regulatory procedures, water resources inventories and investigations, and standards of water quality.

No agreement was reached among the conferees as to extension of authority of the Federal Government in the area of water pollution control.

12. That appropriate public and private agencies mount and sustain an expanded program of public information to the end that enlightened public opinion can be brought to bear on the accomplishments, costs, needs, opportunities, and problems involved in water quality management, noting that this Conference should provide a dramatic opportunity to launch such a program.

13. There was general agreement that the public needs more information on pollution and its abatement. Government agencies and other informed individuals should make every effort to present the facts in understandable form for use by individuals, organizations, and the general media of communication. Such material should include factual information and suggested methods of attack as have been discussed by the Conference.

14. The Federal grants-in-aid program has provided a valuable stimulus to the control of stream pollution. Other methods of financing construction of sewage and waste treatment works deserve thorough study and investigation to determine the most appropriate means available or which might be made available for sound and equitable allocation of costs. Several other means of financing were suggested in one or two papers presented at the Conference. The view of the Panel Subcommittee was that these should be listed and appraised without any commitment on the part of the Subcommittee as to which, if any, should be recommended. It did suggest that these and others unnamed should be explored at some subsequent time.

- (a) Incentive grants from Federal and State appropriations;
- (b) Guaranteed bonds;
- (c) Revenue bonds;
- (d) Marketing long-term revenue bonds under a Federal system of guarantees such as FHA-guaranteed mortgages or loans for defense production purposes;

- (e) The creation of "Water RFC" or such Federal finance agency to discount, purchase or collateralize such bonds for loan purposes; and
- (f) The earmarking of specific taxes, notably, from Federal licensing of pleasure boats and sale of fuel to all water-borne craft, for water pollution control purposes.

15. The construction of municipal waste treatment facilities should be expanded immediately with continued increases to keep up with population growth and to abate the backlog of pollution by 1970. A similar program expansion should be applied to the wastes from industry.

16. That financial incentive should be provided to encourage industry to install needed waste treatment facilities. This may be accomplished by permitting industry, for corporate income tax purposes, to charge the cost of non-productive waste water treatment facilities as expense.

17. Each Federal installation should be required by Congress to treat its wastes in accordance with the standards for cities and industries in the area, with 1964 set as the target date for providing minimum treatment.

18. Enlargement and extension should be made of the water quality monitoring programs now in effect, so as to reveal more adequately conditions, existing and future, in rivers and streams. We believe that the protection of the public health and the preservation of water supply sources for accepted beneficial uses requires such extension and enlargement.

19. In order to facilitate assessment of the total pollution problem, it is recommended that particular attention be given to accelerating the collection of information on industrial waste loading. The Public Health Service should coordinate collection of this information on the national level.

20. States should develop water monitoring programs for bacteriological, biological, chemical, physical and radiological quality. This work should be coordinated with the efforts of an expanded National Water Quality Network of the Public Health Service. More data should be collected on the condition of streams both before and after water pollution abatement.

21. Provision should be made within the Public Health Service for developing the water quality criteria which are suited to application on a national basis. However, many water quality criteria are not uniformly applicable because of the effects of area usage differences, stream characteristics and other factors. State and local determinations of some criteria also will have to be made. It is recognized that periodic revision of these criteria not only will be in order, but should be sought, as new data are made available.

22. That the Public Health Service assume leadership, in collaboration with other public and private agencies, in collecting, compiling, and publishing pertinent data on the toxicity of water contaminants. This should include criteria, standards, methods of testing and safe allowable concentrations for human consumption; also that efforts be made to stimulate toxicological and epidemiological studies to be made to determine long and short-range effects.

23. The total national support for research in water supply and water pollution control should be increased substantially.

24. The flow of research findings on the water environment must be increased and intensified in depth as well as breadth.

25. That improved methods be developed for measuring pollution abatement progress. New engineering parameters which encompass all pollution components, as well as yardsticks for measurement of stream quality, are critically needed.

26. It should be regarded as an obligation on the part of industry to undertake basic research which will determine the biotic and other effects influencing the public welfare of the products they distribute. This should apply to detergents, insecticides, pesticides, herbicides, fertilizers and other microchemicals and micro-biologicals, and to the effects of metallic wastes such as compounds of chromium and cyanide. Where the effects of these or other health hazards or potential public nuisances are not adequately treated within industry, the Federal Government or the States must provide for and budget such research. Additional research of peculiar public responsibility includes the effect and interpretation of reducing anaerobes, nitrifying bacteria, viruses, protozoa, and other biota, and radiation hazards.

27. The flow of engineers and scientists who are competent to advance and administer the scientific, technological, and economic conservation of our water resources, including, in particular, the control of water pollution, must be increased promptly by recruitment and training of basically qualified personnel at two levels: (a) the professional or predoctorate level; and (b) the post-doctorate level.

28. The field of water supply and pollution control has become so complex that we must think more generally than in the past, of a multi-disciplinary approach to the solution of developing problems. This implies the introduction of representatives of many disciplines including economists and political scientists, as well as applied mathematicians and physicists to this field and the creation of requisite institutes or centers for environmental health research at which needed personnel can be brought together.

29. The capability of graduate schools or university departments of engineering and public health to produce a sufficient number of engineers and scientists who are able to deal effectively with the mounting problems of water resource control must be enlarged by support of staff, student body, and teaching and research facilities, as well as by grants-in-aid of research. Interdisciplinary research should be encouraged in particular. Because the use of personnel and the application of research lie in the public domain, the Federal Government must be expected to assume a substantial portion of the required financial burden.

30. The flow of treatment-plant operating personnel as well as engineers and scientists working in the wider field of water supply and water pollution control must be increased and their training broadened.

DID YOU KNOW THAT

Lorenz S. (Larry) Morgan, of Greensburg, chief of the Pennsylvania Health Department's mine drainage section, has resigned after 36 years service with the Department to become Director of Environmental Health for the Bucks County Health Department. Morgan, a native of Wilkes-Barre, who received his B.S. degree in Sanitary Engineering from Pennsylvania State College in 1922, has been in charge of mine drainage for the Department since

1948. He joined the Department in 1922 as an engineering assistant, worked from September 1923 to November 1925 as a bacteriologist with the Philadelphia Water Bureau, and then returned to State service.

Professor Rolf Eliassen has been named Acting Head of the Department of Civil and Sanitary Engineering at the Massachusetts Institute of Technology. He is currently Head of the Division of Sanitary Engineering.

Francis B. Milligan, for 15 years chief of the industrial wastes section of the Pennsylvania Department of Health, retired recently completing 33 years of service with the Department. Mr. Milligan, a native of Philadelphia and a long-time resident of Harrisburg, joined the State Health Department in 1927 as an employee of the Sanitary Engineering Division. His work included research on industrial wastes, experimental plants for treatment of tannery and paper mill wastes, river studies and pollution control measures. Since 1945 he has been chief of the industrial wastes section.

N. Jack Burris is the newly-appointed chief of the water supply section of the Kansas State Health Department's division of sanitation, succeeding Russell L. Culp, who resigned to join a private engineering firm. Mr. Burris has been with the State Board of Health since 1948, and since 1952 has been District IV Sanitary Engineer, covering the northeastern counties of Kansas.

Newly-appointed as sanitary engineer for the Kansas State Board of Health's District VI, with headquarters in Hays, is L. Gene Suhr. A native of Wisconsin, Mr. Suhr received a bachelor of science degree in civil engineering in 1956 from the University of Kansas and a master's degree in sanitary engineering from Harvard University.

MCA PRESIDENT'S TALK ON ENVIRONMENTAL HEALTH

Industry in general and the chemical industry in particular not only are aware of, but are taking action to solve, serious problems arising from our complex society in the area of environmental health, General John E. Hull, president of the Manufacturing Chemists' Association said in an address before the 53rd Annual Meeting of the American Institute of Chemical Engineers. General Hull emphasized the intense degree of responsibility of the chemical industry in air and water pollution abatement, industrial medicine and safety, hazardous substances labeling and assuring the nation of an adequate and safe food supply.

The hundreds of industry experts who devote a considerable amount of their time to finding solutions to these problems which are a by-product of our increasingly technological society are evidence of the responsibility felt by industry, he said.

In citing just one area, that of water pollution abatement, General Hull pointed to a "set of principles" now being arrived at by such experts working in the MCA Water Pollution Abatement Committee.

Among them, he said, were:

"Proper control of stream pollution is one of the obligations of responsible corporate citizenship.

"Avoiding harmful pollution is a necessary business cost. As with other aspects of business, qualified people with clearly defined responsibilities must be assigned to bring and keep pollution under control.

"The chemical industry recognizes the community nature of water pollution control and desires to cooperate fully with the control agencies that are

responsible for safeguarding the health and welfare of the people.

"The solution of stream pollution problems of the individual companies is not a determining factor in competitive production and therefore the knowledge pertaining to solution of these problems should be freely shared."

Throughout the chemical industry, General Hull stated, there is carried out "a positive program for the specific purpose of recognizing hazards to health and safety." This program involves the planned study of harmful properties and the appropriate consideration of these properties in the development and in the manufacture of new products and new uses.

"We study toxic properties in animals for application to man. We determine harmful properties for aquatic life and for waste treatment systems. We examine flammability and other chemical properties from the viewpoint of hazards," he said.

Despite all these advances, the MCA President stated, "unfortunately there are matters about which we are far less confident, a current and outstanding example being the testing for carcinogenic properties. The total effort expended in this testing is substantial and quite expensive. As time goes on we can expect improvement in methods and understanding, but we will always have technical questions."

General Hull cited the problem affecting all society, and said an example can be found in the area of certain synthetic detergents. "These are products which the housewife would not wish to give up. However, they have had a technological impact on the sewage problems in many areas and on the water supply of many communities. As problems have become apparent, hundreds of thousands of dollars of research work has been accomplished by industry. If and when it is decided that these otherwise beneficial products are creating too great a hazard in the streams, then certainly society--of which we all are a part--may feel the consequences in terms of a poorer or different performance by some other product, possibly at an increased cost.

NEW INSECTICIDE FOR MOSQUITO CONTROL

An important advancement in mosquito control technology appears in prospect with the recent announcement by the California State Department of Public Health that an outstanding new insecticide is now available.

This material, an organophosphorous compound, has the chemical name of O, O-dimethyl O (4-methylthio)-m-tolyl phosphorothioate. The first samples for testing purposes were obtained from the laboratory in West Germany where the basic compound was discovered.

Research entomologists became impressed with the extraordinary potential of the new material, both in laboratory and field tests. The new insecticide in field applications as low as 0.025 lb./acre produced virtually complete kill of the late aquatic stages of *Culex tarsalis*, the mosquito which transmits encephalitis, and *Aedes nigromaculis*, California's principal pest mosquito. It has the additional advantage of being less toxic to warm-blooded animals than chemicals currently used in mosquito control.

Following federal and state registration and approval, some 2000 gallons of this new compound, in a 4 lb./gallon formulation, was made available by the German manufacturers for use in the California program.

WATER SUPPLY & POLLUTION CONTROL

NEW ASSISTANT CHIEF ENGINEER OF PHS NAMED

Frank A. Butrico, Sanitary Engineer Director, has been appointed to the position of Assistant Chief Engineer for the Public Health Service in the immediate office of the Surgeon General and working directly with the Chief Engineer, Mark D. Hollis.

The creation of this new position follows the recommendations of the Study Group on the Public Health Service Mission which urged a strengthening of the Service's top administrative structure, together with greater emphasis on leadership and coordination of the Service's increased activities in both environmental health and in comprehensive health services in States and local communities.

NEW NTTCIW OFFICERS ELECTED

Mr. Lloyd Jensen, Vice President, The Great Western Sugar Company, Denver, Colorado was elected Chairman of the National Technical Task Committee on Industrial Wastes at the annual meeting held in Washington, D.C. on December 15 and 16, 1960. D. Gardner Foulke, Research Director of the Sel-Rex Corporation, Nutley, N. Y., was elected Vice Chairman. L. F. Warrick, U. S. Public Health Service, Washington, D. C. was elected Secretary.

Arthur G. Keller, Professor of Chemical Engineering at Louisiana State University was elected Chairman of Task Group I, Food Industries. Vice Chairman of this Task Group will be James W. Bell, Washington Research Laboratories of the National Canners Association.

Ernest P. Hall, Consolidation Coal Company, Pittsburgh, Penna., will continue as Chairman of Task Group II, Mineral Products. Harold F. Elkin of the Sun Oil Company, Philadelphia, Penna., will continue to serve as Vice Chairman of Task Group II.

Task Group III, Chemical Processing, re-elected R. Hobart Souther of Greensboro, North Carolina as Chairman, and Jack T. Garrett of Monsanto Chemical Company, St. Louis, as Vice Chairman.

A. R. Balden of the Chrysler Corporation, Detroit, was elected Chairman of Task Group IV, General Industries. Daniel W. Cannon of the National Association of Manufacturers, New York City, was selected as Vice Chairman of this Task Group.

EIGHTH NATIONAL WATERSHED CONGRESS ANNOUNCED

The eighth National Watershed Congress will meet April 17, 18 and 19 at the Ramada Inn in Tucson, Arizona. The theme of the Conference is "Count Down on Water." The meeting is planned to broaden understanding of watershed resources questions that face both the nation and the Southwest. Topics to be discussed will include water use planning, multiple use of watersheds, and water for thirsty lands.

All interested persons may register and attend the Conference. The

registration fee is \$5.00 which covers all functions and the published proceedings of the Conference. Inquiries concerning accommodations should be sent to: Watershed Congress Housing Bureau, c/o Tucson Convention Bureau, P. O. Box 91, Tucson, Arizona.

ENGINEERING SPECIALTY BOARD TO HOLD EXAMINATIONS

The next qualifying examination of the American Sanitary Engineering Intersociety Board will be held on May 18, 1961. The examination will consist of three parts, one dealing with basic engineering sciences, a second dealing with the specialty area selected by the applicant and the third, an oral examination. The areas of specialty recognized by the Board are: Air Pollution Control, Industrial Hygiene, Public Health, Radiation Hygiene and Hazard Control, and Water Supply and Waste Water Disposal.

For consideration of admission to the examination applications must be received by April 1, 1961. Application forms can be obtained by addressing: American Sanitary Engineering Intersociety Board, Inc., 33 West 39th Street, 15th Fl., New York 18, N. Y.

MCA SPONSORS TASTE AND ODOR RESEARCH

A research project to determine adequate standards for testing taste and odor in our public water supplies is now being carried out at the Franklin Institute, Philadelphia, under the sponsorship of the Manufacturing Chemists' Association. The project will attack the highly complex problems of what is a "bad" taste or odor, and how it can be measured.

The new program will look at various aspects of the taste and odor problem: chemical, biological, psychological and physiological. A special, air-conditioned panel testing laboratory for the experimental work is nearing completion. In this lab, Franklin Institute will attempt to pin down some of the subjective aspects of taste and odor.

Panels composed of persons of various ages, smoking habits and medical histories will be used to determine the effect of various types and intensities of odors, the differences between persons and their response to odors, time relationships, and complicated interactions among these factors.

According to the Institute, the first aim is to find some reproducible method for measuring the intensity of an odor. Later, Institute researchers will attempt to create a system for characterizing--or labeling--odors, so that all scientists working in the field will have some common terms of reference.

THREE SALINE WATER RESEARCH AND DEVELOPMENT PROGRESS REPORTS AVAILABLE

Three new technical reports of the Office of Saline Water have been published and are for sale by the Department of Commerce. The reports are: "Saline Water Conversion by Freezing," "A Study and Development of the Hickman Sea-Water Still," and "The Properties of Gas Hydrates and Their Use in Demineralizing Sea Water."

"Saline Water Conversion by Freezing," has been prepared for the Office of Saline Water by H. F. Wiegandt, School of Engineering, Cornell University, Ithaca, New York. Studies sponsored by the Office of Saline Water at Cornell University of the conversion of saline water by direct freezing using a secondary refrigerant are covered in the report.

"A Study and Development of the Hickman Sea-Water Still," prepared for the Office of Saline Water by the Battelle Memorial Institute of Columbus, Ohio, describes the research work performed on the Hickman rotary vapor-compression process and to determine the economic potential of the still.

"The Properties of Gas Hydrates and Their Use in Demineralizing Sea Water," has been prepared by Allen J. Barduhn and Associates of the Syracuse University Research Institute, Syracuse, New York, for the Office of Saline Water. The use of gas hydrates for demineralizing sea water is one of the newest methods under investigation.

Copies of These Reports Are For Sale By The Office of Technical Services, United States Department of Commerce, Washington 25, D. C.

"Saline Water Conversion by Freezing," sells for \$1.50. To order this report specify order number PB 161906. The price of "A Study and Development of the Hickman Sea-Water Still" is \$3.00. The order number of this report is P B 171030. To obtain "The Properties of Gas Hydrates and Their Use in Demineralizing Sea Water," specify order number PB 171031. The price is \$2.00.

ACE ISSUES SALINE WATER CONVERSION BOOK

Saline Water Conversion, No. 27 in the Advances in Chemistry Series, has been issued by the American Chemical Society. This is a compilation of papers presented at the Symposium on Saline Water Conversion sponsored by the ACS in 1960. It represents the latest work on this vital problem.

These important aspects of the subject are covered fully:

"Saline Water Conversion by Freezing"

"Exploratory Research on Demineralization"

"Centrifugal Phase-Barrier Recompression Distillation"

"Osmosis through a Vapor Gap Supported by Capillarity"

"Some Practical 1959 Advances in Electric Membrane Demineralization"

"Corrosion of Metals in Sea Water"

"Objectives and Status of the Federal Saline Water Conversion Program"

Copies may be obtained for \$5.85 from the American Chemical Society, Special Issues Sales, 1155 Sixteenth Street, N. W., Washington 6, D. C.

NEW WATER POLLUTION MOVIE IS PRODUCED

The Portland Cement Association has produced and is now distributing on a free loan basis a new water pollution control movie, "How Our Town Saved the River." The film, produced in 16 m.m. sound and color, will be of particular interest to communities which are considering bond issues for the construction of waste treatment plants. The film may be booked through district offices of the Association.

PHS ESTIMATES POLLUTION CONTROL COST

The Public Health Service has put a \$10.6 billion price tag on the cost of cleaning up the country's rivers, lakes, and streams during the next ten years. The estimate was made public just prior to the opening of the National Conference on Water Pollution.

About half of the expenditures required to curb pollution over the next decade will come from public funds, Federal, State and local, for construction or improvement of municipal waste treatment plants and about half from industry for the construction of industrial treatment facilities, the Public Health Service said.

Pollution of watercourses in the United States has increased 6 times in the last 60 years, and is still rising. This is a result of population growth, expanding industry, and the result of inadequate waste treatment by industries and cities alike.

During the 1950's a total of \$3.2 billion was spent on municipal sewage treatment facilities against an estimated need of \$5.1 billion. As a result, the backlog of needs for new and enlarged municipal sewage treatment plants was estimated by the Service at \$1.9 billion as of 1960.

During the next 10 years, cities must spend \$5.28 billion if they are to meet their needs for waste treatment facilities, or \$528 million annually. Besides the \$1.9 billion required to wipe out the current backlog, \$2.25 billion is needed for new plants and \$1.13 billion to replace obsolescent plants. This is about 3 percent of total estimated municipal budgets for the period.

The Public Health Service estimates that industry will need to budget more than \$5 billion during the 1960's for waste treatment facilities. This is less than one percent of total estimated industrial investment for plant and equipment for the period.

PAPER MILL USES ACTIVATED SLUDGE PROCESS ON WASTES

Dr. Charles L. Wilbar, Pennsylvania state health secretary, recently commended the D. M. Bare Paper Company of Roaring Spring for being the first pulp and paper mill in the state to achieve high-degree treatment of all its liquid wastes.

The company began an activated sludge process last fall after nine months of pilot plant studies to determine the most efficient treatment methods.

Dr. Wilbar, who is also Chairman of the Sanitary Water Board, said the success of the company in achieving a 92 per cent reduction of biochemical oxygen demand marks a "significant breakthrough" in the technique of treating paper mill wastes.

The company produces approximately 100 tons of paper daily. Wastes after treatment are discharged to Halter Creek, a tributary to the Juniata River.

It is one of more than 45 Pennsylvania paper mills producing pulp or paper. All of the mills are providing at least primary treatment of their wastes under Sanitary water Board orders.

STANDARDS SET FOR OYSTER BEDS

The Washington Pollution Control Commission recently received a report on the oyster-pulp problem. This report on oysters and sulfite waste liquor (SWL) provides the authorities a tool for solving a long-standing controversy. It was prepared by Dr. Gordon Gunter, of the Gulf Coast Marine Laboratory, and Dr. Jack E. McKee, Professor of Sanitary Engineering, California Institute of Technology, Pasadena, California.

Following over a year of intensive study of all available data, the consultants recommended interim water quality standards to protect oysters "from any probable and unreasonable effects of SWL in the estuarial environment." As standards, the consultants recommended allowable concentrations of 10 to 20 ppm (parts per million) of SWL over beds of Olympia oysters and 40 to 80 ppm over beds of the larger Pacific oysters. For additional insurance, the consultants also recommended extensive monitoring and research of both oysters and over-lying waters so that the interim standards can be further refined, if necessary.

NEW REGULATIONS FOR PUBLIC SWIMMING POOLS

A complete revision of the regulations relating to the sanitation, healthfulness, and safety of public swimming pools was adopted by the California State Board of Health on September 16, 1960. Adoption of the regulations culminated several years of work by swimming pool contractors and operators, local and State health department personnel, and pool equipment suppliers.

Almost all of the new regulations are mandatory, in contrast to the former regulations, many of which were presented in the form of recommendations.

The new regulations include new requirements for pool geometry including the depth of water under diving boards and slope of pool bottom; electrical safety; posting of warning signs at pools where no life guard service is provided; bacteriological quality of water, and continuous removal of surface water for effective scum removal.

SANITARY ENGINEERING EDUCATION

REPORT OF STUDY CONFERENCE ON GRADUATE EDUCATION OF SANITARY ENGINEERS

The American Sanitary Engineering Intersociety Board, together with the National Science Foundation, Harvard University and Massachusetts Institute of Technology, sponsored a study conference held in June, 1960 dealing with the graduate education of Sanitary engineers and the accreditation of schools offering advanced degrees in sanitary engineering.

The conference categorized sanitary engineering as falling within areas designated as Water Resources Engineering, Air Resources Engineering and Environmental Health.

The conference adopted the following resolutions:

ACCREDITATION

1. A.S.E.I.B. should endorse the accreditation by E.C.P.D. of graduate programs in sanitary engineering, including other engineering programs in sanitary engineering related to environmental health, beginning with Master's programs.

2. To be accredited in sanitary engineering, including other engineering programs related to environmental health at the graduate level, a program shall not have to offer instruction in more than one of the fields considered by the conference.

3. A resolution favoring these positions should be transmitted to E.C.P.D.

4. The resolutions and recommendations of this conference should be submitted to E.C.P.D. as guidelines or general criteria for the accreditation of suitable programs.

TERMINOLOGY OF THE SANITARY ENGINEERING PROFESSION

"---That every possible effort be made to reconcile differences in the use and understanding of terminology designating the field (of sanitary engineering) so that a mutually acceptable engineering title of common usage be established.

COLLABORATION AMONG SCHOOLS

"----to study the question of the desirability of collaboration among schools having programs in fields of engineering related to environmental health.

LENGTH OF STUDY FOR M. S. DEGREE

It was resolved that the time length of graduate instruction of continuation study for the first degree in sanitary engineering and environmental health be one calendar year rather than academic year.

THESIS REQUIREMENT FOR M. S. DEGREE

It was resolved that each institution shall be free to require the preparation of a thesis for the first degree in sanitary engineering and environmental health.

COMMON CORE COURSES

It was resolved that for the graduate programs in Water Resources Engineering, Air Resources Engineering and Environmental Health, the following courses would constitute a common core for each program: Chemistry, Microbiology, Radiological Hygiene, Statistics and Epidemiology.

AIR POLLUTION

MACKENZIE HEADS NEW PHS DIVISION OF AIR POLLUTION

A new Division of Air Pollution in the PHS was recently announced. The new Division will consolidate the research, technical assistance and training activities carried out since 1955 by the Air Pollution Engineering and Medical Programs. Chief is Vernon G. MacKenzie. Deputy Chief is Dr. Richard A. Prindle, and Assistant Chief is Ralph C. Graber. Staff arms, in addition to National Advisory bodies, include a Program Planning and Analysis Staff, a Health Information and Education staff, and an Administrative Services staff. The major role of research in the Division is reflected by the two research branches, the Laboratory of Medical and Biological Sciences, and the Laboratory of Engineering and Physical Sciences. Other branches include the Field Studies Branch, the Research and Training Grants Branch, and the Technical Assistance Branch.

MIDWEST AIR POLLUTION ASSN. MEETING

Three Armour Research Foundation staff members were elected to top posts in the Midwest Air Pollution Prevention Association, Inc., at the group's annual meeting December 13 at the Hotel Sherman.

New president of MAPPA is Daniel A. Sullivan, ARF consultant. Lewis Evans, Chicago & Indiana Railroad Company, was re-elected first vice-president. Second vice-president for the coming year is Dr. George S. Gordon, ARF director of chemistry research.

Douglas R. Fuller, Northern Trust Co, was re-elected treasurer of MAPPA; and Dusan Ljubenko, administrative supervisor, ARF chemistry research division, was elected secretary.

During the meeting, members heard an annual report of activities of MAPPA by outgoing president, Dr. Haldon A. Leedy, ARF director.

Also on the program were reports of two committees established by the Chicago air pollution ordinance: the air pollution control committee represented by E. C. Logelin, vice-president, U. S. Steel Corp.; and the technical advisory board represented by its chairman, Paul Woodnorth, retired chief engineer, Sherwin Williams Co.

Speaking at the association's luncheon was Ralph C. Graber, assistant director, Division of Air Pollution, United States Public Health Service, who discussed "The Activities of the Public Health Service in Air Pollution and Air Pollution Control."

HARVARD PROGRAM INCLUDES BUILDING FOR ENVIRONMENTAL HYGIENE

Ground-breaking ceremonies in October initiated the long-range building program of Harvard's School of Public Health. Construction is expected to begin this midwinter on two buildings for the housing of the nutritional research laboratories and the School's newly created Division of Environmental

Hygiene. Headed by Dr. James L. Whittenberger, this new Division deals with public health problems associated with nuclear radiation, pollution of air, food, and water, industrial and highway accidents and hazards of the jet and space era.

NEW FACILITIES FOR ENVIRONMENTAL HEALTH ENGINEERING ANNOUNCED BY CALIFORNIA TECH

California Institute of Technology has announced the completion of the W. M. Keck Engineering Laboratories. Facilities for the study of Environmental Health Engineering include laboratories for Sanitary Bacteriology, Biology, and Chemistry; a laboratory of Environmental Health, devoted to air pollution, radiological monitoring and industrial hygiene; a Unit Operations and Processes (pilot plant) Laboratory; and a Groundwater Research Laboratory.

Study at the Laboratory is at the graduate level with primary emphasis on work leading to the Ph. D. degree. Inquiries concerning the program of study and opportunities for research and advanced study should be addressed to: Dean of Graduate Studies, California Institute of Technology, Pasadena, California.

METROPOLITAN BOSTON PLANS FIGHT AGAINST ANNUAL \$20 MILLION AIR POLLUTION LOSS

The air pollution bill recently passed by the Massachusetts legislature permits action for the establishment of a control district covering the Boston area, and preliminary plans have been made for an intensive study of air pollution in the metropolitan area with the use of approximately twenty sampling stations.

Boston and surrounding communities suffer a yearly loss of twenty million dollars because of air pollution, not counting losses in human illness, according to findings of a study conducted by Dr. Rolf Eliassen, Professor of Sanitary Engineering at the Massachusetts Institute of Technology, with the assistance of Dr. James L. Whittenberger, Assistant Dean of the Harvard School of Public Health. The report also stated that present laws and means of control were inadequate to cope with the estimated 2600 tons of contaminants discharged daily into the Boston metropolitan atmosphere.

SAMPLING OF D. C. AIR SHOWS "SMOG" POTENTIAL

Samples of the District air have shown that Washington's smog reading is 0.25 parts per million - a reading 0.10 parts per million greater than the level considered permissible under California pure - air standards, and a level at which people experience an eye irritation. Samples were collected at the Municipal Center by the District Health Department and the Public Health Service during the first week of December - a week which included two days of mild temperature inversion. Although visibility varied from less than one mile to below three miles (both conditions below California standards for visibility), the inversions were not as severe as others that have occurred in recent months.

NATIONAL GOALS CALL FOR THREE FOLD INCREASE IN AIR POLLUTION RESEARCH

America's needs in air pollution research within the next decade are delineated in terms of ten specific national goals and the requisite financial effort, as recommended by the PHS Surgeon General's Ad Hoc Task Group on Air Pollution Research Goals. After briefly summarizing air pollution problems and trends, the report charts the cost of needed research to achieve each goal and the recommended allocations of financial responsibility among the Federal Government, State and local governments, and industry.

The committee recommended that financial support of air pollution research be increased from a current estimated level of \$11 million annually to about \$22 million a year by 1968. The ten man committee further recommended that the Federal Government assume 40 percent of this cost, industry 28 percent and State and local governments 32 percent.

In the 40-page report the committee recommended these ten national goals for the 1960-1970 decade:

1. Determine the effects of air pollution on human health.
2. Determine the effects of the Nation's agricultural economy resulting from air pollution damage to animals and crops.
3. Find better ways of measuring the economic loss from air pollution damage to materials, and soiling, and reduced visibility.
4. Find better ways of measuring and identifying air pollutants at their source and in community air.
5. Develop better techniques for assessing meteorological factors affecting air pollution.
6. Learn, through research, more about the formation of new pollutants from reactions in the air.
7. Expand our nationwide air pollution monitoring efforts.
8. Develop new methods and equipment for controlling the sources of air pollutants.
9. Build and disseminate a comprehensive body of knowledge related to the technical, legal, economic, and administrative aspects of air pollution.
10. Evaluate the legal and administrative practices related to air pollution control.

Copies may be obtained from the Information and Education Office, Division of Air Pollution, Department of Health, Education, and Welfare, Washington 25, D. C.

AIR POLLUTION ADVISORY COMMITTEE ENLARGED

The National Advisory Committee on Community Air Pollution has been enlarged and reconstituted, it was announced recently by the Public Health Service.

The membership has been increased from 12 to 15, with 5 members from industry, 5 from State and local governments, and 5 representing universities, professional associations, and the public. For the first time, a staggered tenure plan has been established so that five members will be replaced each year with new three-year appointees.

The committee was first set up in June, 1957, by the Surgeon General to advise him on the Public Health Service's policies, objectives, activities, and accomplishments in the air pollution field. Like the newly established PHS Division of Air Pollution, the enlarged National Advisory Committee reflects the growing concern about the air pollution problem in our urbanized society.

Present members are: P. N. Gammelgard, Vice President, Pure Oil Co., Palatine, Illinois; S. Smith Griswold, Director, Los Angeles Air Pollution Control Officer, Cincinnati; Charles M. Heinen, Asst. Chief Engineer, Materials Laboratories, Chrysler Corporation, Detroit; R. Wolcott Hooker, Senior Vice President, Hooker Chemical Co., New York; R. L. Ireland, Chairman of the Board, Pittsburgh Consolidation Coal Co., Cleveland; Edward C. Logelin, Vice President, U. S. Steel Corporation, Chicago; Dr. Louis C. McCabe, President, Resources Research, Inc., Washington, D. C.; Dr. Malcolm H. Merrill, California State Directory of Public Health, Berkeley; Mrs. Eugene Meyers, Washington, D. C.; Dr. Norton Nelson, Director, Institute of Industrial Medicine, New York University, New York; Dennis O'Harrow, Executive Director, American Society of Planning Officials, Chicago; Dr. Wilson T. Sowder, Florida State Health Officer, Jacksonville; Raymond R. Tucker, Mayor, St. Louis; and Dr. Oram C. Woolpert, Director, Ohio State University Research Foundation, Columbus, Ohio.

State Board Adopts Standards On Crankcase Emissions

The California State Board of Public Health adopted standards on crankcase hydrocarbon emissions, known as "blowby," on December 2, 1960. These standards limit the hydrocarbons for motor vehicle crankcase emissions to 0.15 percent by weight of the supplied fuel, as determined in a composite sample representing three specified modes of engine operation.

The standards were developed by State Department of Public Health staff after a review of all available data. The Department's Advisory Committee on Air Sanitation, consultant scientists, and technical groups reviewed the proposed standards before adoption. A public hearing was also held before the December 2 meeting.

The need for standards on blowby has been recognized since December of 1959 when the Board adopted standards for air quality and motor vehicle exhaust emissions. Although exhaust emissions are the main source of pollutants from motor vehicles, studies by several organizations indicated at that time that crankcase emissions also are a significant source of hydrocarbons. It became clear that although the volume of blowby gases is much less than the exhaust gas volume, the hydrocarbon concentration is much higher.

Emissions of hydrocarbons from the carburetor and fuel tank of motor vehicles are also important sources of air pollution but existing data are not sufficient for the establishment of standards for these at present.

The Board adopted the following policy statement concerning such emissions at the December 2 meeting:

"The State Board of Public Health has established standards for hydrocarbons and carbon monoxide in motor vehicle exhaust and for hydrocarbons in crankcase emissions. Standards for hydrocarbon losses from the carburetor and fuel tank are not feasible at this time. The Board recognizes that carburetor and fuel tank hydrocarbon losses comprise a significant contribution to community air pollution and recommends that controls be approved when technically and economically feasible."

NUCLEAR ENERGY

NUCLEAR REACTOR EXPLODES

The first fatalities from a reactor accident occurred on January 3rd, when the SL-1 reactor at the National Reactor Testing Station, Idaho, suffered a violent explosion, killing all three men on duty at the time and dispersing radioactivity outside the building. The reactor was shut down at the time of the accident and was undergoing routine maintenance. No information is available at the time of this writing on the cause of the explosion which produced radiation levels of from 500-1000 r/hr. in the reactor building and spread detectable quantities of I-131 and other fission products as far as 20 miles from the site.

AEC ISSUES PROPOSED SAFETY REGULATIONS

The Atomic Energy Commission has issued for public comment proposed regulations formalizing procedures by which members of the public may participate in safety considerations of AEC-owned power reactors installed at non-AEC sites as part of conventional electrical utility systems. The proposed regulations formally establish steps outlined in a Commission decision, March 1959, which set up the Atomic Energy Commission's "parallel procedures" program for public participation in the safety review of such AEC-owned reactors. The procedures to be observed will parallel those followed in privately-owned power reactor licensing procedures.

The projects to which the proposed regulations have been applied include the reactors being built for the Consumers Public Power District near Hallam, Nebraska; the Rural Cooperative Power Association, Elk River, Minnesota; the City of Piqua, Ohio; and the Puerto Rico Water Resources Authority at Punta Hiquera, Puerto Rico.

HEARINGS RECORD AVAILABLE

Printed hearings entitled "Radiation Protection Criteria and Standards: Their Basis and Use," together with a separate Summary-Analysis Report are available upon request to the Offices of the Joint Committee on Atomic Energy, Room F-88, from the Capitol, Washington 25, D. C.

SAVANNAH RIVER STUDY STARTED

The first phase of a joint PHS - Department of Interior environmental survey study of the Savannah River Estuarial waters began on November 14, 1960, with the initial collection of marine organisms, water and suspended solids, and silt samples. Radiochemical analyses will be performed at the Montgomery, Alabama, Laboratory of the Division of Radiological Health.

The study, known as the Savannah Estuary Environmental Radiological Survey (SEERS), is expected to yield basic data useful in determining the fate, and mechanisms of removal, of radionuclides in a marine environment.

The first phase of the study will run for approximately two years and consists of sampling on a monthly and later a seasonal or quarterly basis in the Savannah River Estuary. Phase Two will consist of sampling and analysis of biological organisms, water, and silt, upstream in the fresh waters of the River; and Phase Three will involve study of the fate of radionuclide waste products from the Savannah River Nuclear Plant enroute to the food chain.

COMMENTS REQUESTED ON PROTECTION STANDARDS

The Federal Radiation Council has requested comments concerning radiation protection standards for selected radionuclides. The FRC is currently studying the problem of providing guides to be used in the control of human exposure from environmental contamination by radioactive materials. Initially attention is being directed to I-131, Ra-226, Sr-89 and Sr-90. In connection with the recommendations of the National Committee on Radiation Protection and Measurement for the radionuclides referred to above, the Council is studying these values in the light of the following questions:

1. Does exposure of the population at the level of these guides represent an undue biological risk to any segment of society considered in light of the various benefits deriving from the uses resulting in the exposure?
2. Does the conformance with these guides represent an undue economic burden to any segment of society considered in light of the reason for controlling exposure to radiation?

In regard to the application of these guides in the control of environmental contamination, it has been suggested that there is a need for a graded series of guides at which appropriate actions will be taken. For example:

- a. Assuming that a specific numerical guide has been determined for the removal of food from the market, would it be appropriate to use a lower numerical guide representing a more stringent requirement for the controlled release of radioactive material to the environment?
- b. Assuming that a specific numerical guide has been determined for the controlled release of a radionuclide such as Ra-226, which also occurs naturally, should this same numerical guide be used as the level at which a public water supply containing the naturally occurring radionuclide would be condemned?

The FRC would welcome comments which interested persons or organizations might care to make. Comments should be addressed to: Chairman, Federal Radiation Council, Executive Office Building, Washington 25, D. C.

KANSAS RADIATION PROTECTION REGULATIONS

Radiation protection regulations prepared by the professional staff of the Kansas State Board of Health are currently being reviewed by two state advisory groups. The proposed regulations, which were authorized by the Radiation Protection Act, passed by the 1959 Kansas Legislature, will provide for the health and safety of both those citizens of the state who are

occupationally exposed to radiation and those citizens of the general population.

All radiation sources will be covered by the proposed regulations. Among the specific topics included in the regulations are the following: Registration of radiation sources (both radiation-producing machines and radioactive material), basic standards to be used in order to maintain safe conditions, protection measures and precautionary procedures, proper use of radiation-producing equipment, construction and operation of radiation facilities, disposal of radioactive waste material, and procedures to be followed in case of an accident or an emergency.

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SEWER DESIGN AND CONSTRUCTION MANUAL REPRINTED

ASCE Manual 37 "Design and Construction of Sanitary and Storm Sewers," issued in early 1960 as a joint effort with the Water Pollution Control Federation, has now been reprinted with corrections to several pages.

Those who have a copy of the 1960 edition can obtain, with the compliments of the Society, a reprint containing those pages that have been corrected for the 1961 printing. This reprint can be cut apart and the pages inserted into the previous edition.

The twelve-chapter manual contains 283 pages of text, 102 illustrations, 24 tables, and 119 references. As the first extended collection of information on the subject, it will make a valuable reference in an important phase of wastewater technology. Individual subjects covered include organization and administration of sewer projects, surveys and investigations, quantity of sanitary sewage and storm water, hydraulics of sewers, design of sewer systems, appurtenances and special structures, materials for sewer construction, structural requirements, construction plans and specifications, construction methods, and pumping stations.

The manual may be ordered by use of the coupon herewith. The list price is \$7.00 per copy; ASCE members and public and school libraries can order copies at a price of \$3.50 each. The price to members of WPCF is the same, upon application to that organization.

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MANUAL ON GROUND WATER BASIN MANAGEMENT

The Committee on Ground Water of the Irrigation and Drainage Division has completed the newest in the series of ASCE Manuals on Engineering Practice. This Manual (No. 40) is concerned with the operation and management of ground water resources for irrigation and other beneficial uses. The Manual will find its field of greatest use in the planning of water development projects and in designing and programming facilities for the controlled conjunctive operation of surface and ground water reservoirs in order to make maximum use of available water supplies. Copies of the ASCE Manual No. 40 can be obtained by use of the attached coupon. The list price is \$4.00, with ASCE members and public and school libraries receiving a 50% discount.

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